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A STUDY OF THE INNOVATIVE ASPECTS OF EMERGING OFF-FARM AGRICULTURAL PROGRAMS AT THE SECONDARY LEVEL AND THE ARTICULATION OF SUCH PROGRAMS WITH TECHNICAL COLLEGE CURRICULUM IN AGRICULTURE.

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SUCCESSFUL EARLY PROGRAMS IN OFF-FARM AGRICULTURAL EDUCATION WERE ASSESSED IN THIS 2-PHASE PROJECT. THE FIRST PHASE OF THE PROJECT ASSESSED INNOVATIVE PROGRAMS AND PRACTICES THAT CONTRIBUTED TO THE SUCCESS OF THESE PROGRAMS. QUESTIONNAIRES WERE DEVELOPED AND ADMINISTERED TO APPROPRIATE PERSONNEL OF TEN HIGH SCHOOLS HAVING PROGRAMS IN AGRICULTURAL BUSINESS, AGRICULTURAL MECHANIZATION, CONSERVATION, AND ORNAMENTAL HORTICULTURE. A NUMBER OF COMMON CHARACTERISTICS OF SUCCESSFUL INNOVATIVE PROGRAMS WERE LISTED. THE SECOND PHASE OF THE PROJECT RELATED TO THE ARTICULATION OF THESE PROGRAMS ON THE SECONDARY LEVEL WITH SIMILAR POST-HIGH SCHOOL PROGRAMS IN THE AGRICULTURAL AND TECHNICAL COLLEGES. A SERIES OF CONFERENCES AND PERSONAL VISITS RESULTED IN A NUMBER OF FINDINGS WHICH POINTED TO THE NEED FOR GREATER ARTICULATION OF CURRICULUM OFFERINGS. THE INVESTIGATORS CONCLUDED THAT (1) THE NUMBER OF SPECIALIZED OFF-FARM AGRICULTURAL PROGRAMS WILL INCREASE AT BOTH THE HIGH SCHOOL AND POST-HIGH SCHOOL LEVEL AND (2) THE BEST USE OF EDUCATIONAL RESOURCES NECESSITATES CONTINUED DIALOG BETWEEN THE CONCERNED HIGH SCHOOL AND TECHNICAL COLLEGE PERSONNEL TO ACHIEVE A "TOTAL TEAM" APPROACH TO THE JOB OF PROVIDING OCCUPATIONAL EDUCATION IN AGRICULTURE. ALL FEDERAL FUNDS FOR THIS CONTRACT WERE SUBCONTRACTED THROUGH THE BUREAU OF OCCUPATIONAL EDUCATION, NEW YORK STATE EDUCATION DEPARTMENT. (AL)

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Joe P. Bail
William H. Hamilton

February 1967

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INTRODUCTION

The Problem

With the passage of Public Law 88-210, the base for vocational education in agriculture was broadened from preparation solely for farming as a vocation, to that of training for any occupation involving knowledge and skills in agricultural subjects.

In answer to the employment needs of their communities which far antedated permissive legislation, a number of schools in New York and Connecticut adopted special courses in plant science or ornamental horticulture, agricultural business, agricultural mechanization, and conservation in addition to the traditional farm production and management. Many additional schools are working in the direction of such specialized programs. If such programs are to be implemented in a meaningful way, advantage should be taken of the experience gained by the successful early programs.

The first phase of the project assessed innovative programs and practices that contributed to the success of these programs.

The second phase of the project related to the articulation of these programs on the secondary level with similar post-high school programs in the agricultural and technical colleges.

Since these two projects were conducted by the same personnel and under the same contract number, the general part of this report will be in one unit. The main body of the report concerning methods, results, discussions, conclusions and summary will be divided into two parts. Part I will relate to the innovative phase of the project, and Part II to the articulation portion.

Selected Review of Literature

Cushman, Christensen and Bice (4) found 213 job titles in off-farm agricultural occupations in their study of New York school districts. In the job titles found in the study the investigators identified agricultural competencies needed by employees. Predictions were made by the employers concerning future employment in the identified job titles.

On the basis of their findings the researchers recommended (4, p. 57) training programs in:

1. Agricultural business and agricultural mechanics for prospective workers in all occupational families.

2. Plant science for prospective workers in crops marketing and processing, forestry and soil conservation, wildlife and recreation, ornamental horticulture and agricultural service occupations.

3. Animal science for prospective workers in dairy manufacturing and processing, livestock marketing and processing, for other livestock industry and farm service occupations.

4. Forestry, conservation and outdoor recreation for prospective workers in these fields.

Approximately 487 high school vocational agriculture graduates were available to compete for 2,817 (4, p. 59) employment opportunities in off-farm agricultural occupations. This shortage of trained graduates implied a need for expanded vocational programs in the state in line with provisions of Public Law 88-210.

Masley (6, p. 6) conducted an off-farm agricultural occupations study in Connecticut. He found 17,200 full-time and 5,404 part-time employees needing some knowledge and competencies in agriculture.

The recommendations of Masley included curriculums offerings for a narrow range of occupations of one to five job clusters, family occupational curriculums orientated to more than one occupational family group, and a third offering was suggested as a "cross family" curriculum involving several occupational families.

Byrl Shoemaker (8) suggested the procedure for involving a community in a needs study for program development. The steps he suggested for developing an occupational survey of a community involved:

1. The initial expression of the interest by the local district principal and his communication with the state director of vocational education.

2. The direction of the inquiry to a member of the staff designed to work as a survey coordinator.

3. Organization of initial planning medium with the local district principal, to involve the survey coordinator and key personnel from the local school staff and community.

Topics for discussion would include student orientation, the administration of student interest questionnaires, follow-up studies, the schools or classes to be involved, the method of student orientation, method of administering, scoring and evaluating the student planning questionnaire, occupational areas to be included, reporting procedures, local businesses or industries to be surveyed, the organization of the survey and the method of informing the public.

4. Conducting the survey.

5. Reporting the surveys and informing interested groups.

6. The compilation of a final report, with recommendations for programs to be initiated.

A summarization of off-farm agriculture employment in 26 states (3) was made by the Center for Research and Leadership Development in Vocational and Technical Education. The generalizations from the summary indicate:

1. That approximately half of all off-farm agricultural businesses need employees with education or training in agriculture.

2. Employers expect a 20 percent growth in numbers of employees in the next five years with the greatest increase in agricultural supplies sales and services, agricultural machinery sales and services, ornamental horticulture, and livestock and food crop products marketing and distribution.

3. The competencies needed are determined by the products handled.

4. Some human relations and business competencies are needed by all employees in agricultural businesses.

5. Effective training should make it possible for new employees to earn higher wages.

Wesley P. Smith (9) made a case for both the innovative programs and the articulation of the new vocational agricultural programs with those of agricultural and technical colleges in the following manner. He described the increasing employment opportunities in the more technical occupations and the need for training of technicians. He suggested that the trend was for the post-high school to do this training. He also suggested that most of this training cannot be completed on a short-term basis and therefore should continue over as much as a four-year program with two years of this training in high school and two at the post-secondary level. To provide effective training high school and post-high school curriculums would need to be carefully articulated. This high school portion of the training will provide for entry-level training in the occupation for students who enter employment after high school.

Hackman (5) defined articulation as: "The degree to which the interlocking between training in the secondary school and college facilitates a continuous and efficient educational progress of students." Her research, although dealing with home economics, does have some implications for agricultural education. For example, 2,532 instances of duplications were investigated in her study. Of these, one-fourth were of no value, one-fourth of much value, and one-half of some value, to the students repeating items of training. Continued emphasis was of value in such matters as planning and reasoning activities when compared to repetitive actions.

Four major suggestions for ways of improving articulation between high school and college courses were offered by Hackman:

1. Close cooperation between high school and college teachers.

2. Improved high school counseling procedures.

3. The use of valid pre-tests for college course placement.

4. The establishment of standards of performance on facts and principles.

Seay (7, pp. 57-61) described articulation thusly: "Articulation in education is coordination of effort in those areas in the fields where there are joint concerns and responsibilities between more or less independent units. Good articulation insures smooth transition, continuity of the educative process, efficient development of the pupil and maximum uses of resources. It minimizes conflict and time-consuming readjustments which frequently result in confusion and sometimes in frustration. It reduces failures and eventual dropouts. It is involved with physical, intellectual and emotional readiness for the next step. Good articulation is a requirement in administration, curriculum, guidance, instruction and use of facilities. Its basic tool is communication - two-way communications. The principle function of this communication is to facilitate orderly transition. The ideal is to foster the kind of relationship between various levels of education in which understanding, appreciation and cooperation are mutually sought and mutually practiced."

Seay indicated some of the educational shortcomings of poor articulation procedures. Among these he listed needless duplication of effort, excessively high percentage of overlapping, failures, dropouts, misfits in college, scapegoating and buckpassing. As far as the institutional level was concerned the costs included poor understanding of the organization, standards, aims, strengths or weaknesses of the respective levels of education.

Arnold (1) in speaking of a "balanced program of vocational education" suggested that such a program needed to be an all-age all-job program. Arnold belived that if education was to be tailored to all of the requirements of communities and to people within these communities or areas, it must make room for all of the people that it expected to serve. It must reflect the needs of businesses and industry as well as the needs of pre-employment training and re-training for those who need upgrading in their skills.

Such a program would involve both the high school and post-high school educational institutions. The high school would need to provide sound vocational education programs for the student who does not plan to continue his education but enter the field of work as well as those who plan for post-secondary education. For those students not planning to continue formal education at this time, the program must provide skills that will enable these students to enter the labor market. For others who may want additional or post-secondary training in vocational skills, this opportunity must be provided. At the same time both these programs must provide the opportunity for veteran workers who need re-training or upgrading, or the adult who failed to complete college, to obtain vocational training in line with their current needs or aspirations.

Objectives

The two major objectives of the project were:

1. To identify the innovative procedures and practices followed by schools in which emerging programs in off-farm agricultural occupations are underway in agricultural business, agricultural mechanization, ornamental horticulture and conservation. The procedures may relate to objectives, curriculum content, pupil selection, facilities (classrooms, laboratories, land, etc.), work experience, organization and administration, advisory boards, community acceptance, and other factors.

2. To develop a plan for improved articulation of off-farm agricultural occupations programs at the secondary school and post-high school (agricultural and technical colleges) level as regards pupil selection, skill and competence level, curriculum content, and entry job level of respective groups.

PART I

INNOVATION

METHODS

The research methods used in conducting this project are described in the following steps.

Step 1. In cooperation with the supervisory staffs in agricultural education in New York and Connecticut, a master list of secondary schools conducting off-farm agricultural occupations programs was prepared.

Step 2. The final selection of teachers and schools was made by the project staff from among those nominated by the State Supervisory Staffs. This selection provided geographical distribution as well as representation of innovative teachers in each specialized program. (See Appendices D and E)

Step 3. A series of visits were made to the chosen schools for observation of the program as well as a basis for completion of Step No. 4.

Step 4. In order to identify the successful and innovative practices used in starting specialized programs, a series of two-hour interviews were conducted with high school panel members. Interviewing them in their home school situation was considered the best basis for identifying materials to be used in the development of the survey instruments (See Appendix A).

The open-ended interview technique was used to assure that the thoughts that were most important or uppermost in the teacher's mind concerning the new programs would be obtained first and not be affected by the manner in which a question was asked. The questions used in this portion of the interview were designed to stimulate the respondents concerning the things that worked or were of concern in the start of this new specialized program. A back-up questionnaire was used at the end of the interview to make certain of coverage in all areas of concern.

The interviews were summarized and the items identified by key teachers in starting new successful innovative programs were used as the basis for the final questionnaires.

Step 5. The resulting questionnaires were used to gather data from knowledgeable people. In addition to the teachers, counselors, administrators, employers, students and parents planned for this step of the project, the questionnaires were also administered to school board and advisory board members. Some former students were interviewed as well as current students of the program.

The questionnaires were designed to seek from the professional people information that applied to their areas of educational concern. The lay people, school board members, advisory board members, parents, employers and students were asked questions appropriate to their positions.

Step 6. Determination of the successful practices based upon the information gained is given in the result section which follows.

Step 7. A list of guidelines for operating and conducting similar programs in other schools throughout the Northeast has been completed. (See Appendix G.)

Step 8. The results of the findings will be disseminated to interested school systems and persons throughout the Northeast.

RESULTS

Starting the Program

In starting many new programs, surveys played an important role. Eighty-five percent of the school people interviewed indicated that a job opportunity, student interest or other surveys were used to inform the student body and the public of the new programs as well as a means of identifying needs, content, and prospective enrollment for these programs. Surveys were rated as important, by the group, with a mean rating of 2.9 on a scale of 0 for no importance, 1 for little importance, 2 for some importance, 3 for important and 4 for very important. Complete tabulations of responses to the questionnaires are found in Appendix B.

These surveys were held in better repute by guidance personnel and teachers than by administrators. The administrators rated surveys 2.4 while guidance personnel placed them at 3.1 and teachers at 3.2 on the scale.

Unanimous agreement was obtained on the question, "Would you use a survey today if you were beginning a new program?" The mean rating of importance by those responding was 3.5.

In reply to the question concerning help from the State Education Department personnel, 83 percent of the sample indicated that they had had such help. Twenty of these 35 indicated that it was very important with the mean rating 3.0.

Joint meetings of teachers, guidance personnel and administrators held in connection with planning these new programs were considered important by all of the teachers, administrators, guidance personnel, school board members and advisory board members questioned on this point. Thirty-nine out of 46 indicated that such meetings were held and these were given an overall rating of importance of 3.4. Advisory board members found these meetings least satisfactory with a rating of 2.9 as contrasted to 3.4 for teachers and administrators, 3.6 for guidance personnel and 3.7 by the school board members.

Forty-five of the 46 people questioned recommended these meetings for anyone starting a similar new program. The lone dissenting vote was a teacher of agriculture.

Similar programs were visited by 17 people in the planning stage of their program. This was slightly less than half the group responding to the question. However, in answer to the question, "Would you recommend such visits to people starting a similar program today?" 45 out of the 46 people suggested that visits be made.

The practice of interviewing local dealers in regard to the start of these new programs was raised with all groups except parents. The results showed 73 percent indicated that such interviews were held with a rating of 3.0 in importance. Advisory board members considered it of most importance at 3.4 while guidance personnel considered it of least importance with a rating of 2.2 Employers themselves rated it at 3.1 while the remaining groups rated it 3.0.

When these same groups were questioned concerning the advisability of interviewing dealers prior to the establishment of a new specialized program, 95 percent indicated agreement with the practice.

Work Experience

All seven groups interviewed were questioned concerning the use of work experience in their specialized program. Of 77 people answering, 63 indicated that work experience was an integral part of the program. The overall importance of work experience as part of the program was rated at 3.2 by these groups. Employers were most emphatic in supporting work experience, considering it worth 3.7 on the 4 point scale, guidance personnel and advisory board members rated it at 3.3, while administrators and parents rated it 3.1. The teachers of agriculture rated it lowest in importance at 2.9.

Work experience was recommended unanimously by all respondents to the question. However, the number of hours per year of work experience considered desirable ranged from a low of 101-150 hours to a high of 400 or more hours per year. The median of this range was between 301-350 hours per year of on-the-job experience.

"Does the school help students find work experience jobs?" Eighty-eight percent of the sample, or 68 out of 77, indicated that the school does help students find this first work experience job. The degree of importance was rated at 3.0 by all groups with the high rating by school board members at 3.8 and the low by employers at 2.7.

A total of 64 percent of this same sample indicated that employers were involved in planning the on-the-job experience in the work experience program. This, however, had only a rating of 2.5 for overall importance as contrasted to 3.5 for the help of the school in locating students work experience jobs. The parents, as a group, felt it of least importance to have employers involved in planning on-the-job experiences while guidance personnel were highest with a rating of 3.5.

Students were paid for work experience in 86 percent of the cases. The importance of pay for work experience time was rated at 3.0 by the seven groups while the highest rating was by school board members at 3.7 and lowest by advisory board members at 2.7.

The group was asked, "Would you recommend pay for time in work experience?" Ninety-four percent indicated a positive answer. Most of the employers questioned considered the incentive of pay as important in work experience.

Facilities

Twenty-eight of 41 professional people and board members considered facilities a concern at the inception of the specialty program. The importance rating was 2.6.

Eighty-four percent of the sample had access to greenhouses. This comprised the entire group offering ornamental horticulture or plant science programs. The importance of the greenhouses to this program was rated at 3.5 by the groups with guidance personnel rating them as 3.2, teachers and administrators 3.4, and school and advisory board members at 4.0

New equipment for these specialized programs was considered of considerable importance with an overall rating of 3.4. Of the sample, 94 percent indicated that new equipment had been purchased in order to improve the quality of the program. Need for additional equipment was evidenced by a number of individuals with decreasing awareness of the need as respondents were further removed from the actual teaching of the course material.

Community Concerns

Members of all groups interviewed were asked questions concerning the reason for the adoption of the new program. The answers indicated a response to needs based on community changes over a period of years. Evidence of good rapport with local dealers in the special areas was shown by 97 percent reporting the interest of local dealers in the in-school programs. The importance of this interest was rated at 3.3 by the group with the low rating of 2.6 by the teachers of agriculture and a high of 3.7 by advisory board members compared to 3.6 by the employers themselves.

When questioned concerning trade organizations within the special field, only 36 percent of the sample were aware of any such organization in their area. Slightly more than half, 54 percent, of those aware of such organizations indicated that their schools had worked with these trade organizations. Of the five teachers who were aware of these organizations three rated such cooperation very important, one important, and one of little importance for a mean rating of 3.2. Four administrators were aware of these organizations, three considered it very important and one important, for a mean rating of 3.8. Two guidance persons who were aware of these organizations also considered it very important. Of the employers interviewed only two were aware of this cooperation between the school and these organizational groups. They considered it a very important step. Of the ten who were not aware of this type of cooperation, two felt that this cooperation was of some importance.

Public Relations

Communications were considered a concern by 66 out of 80 people interviewed during the study or 83 percent of the sample. The mean rating of importance by all seven groups was 3.1, with the individual groups rating the importance as follows: teachers 3.5, administrators 3.4, guidance personnel 3.4, school board members 3.3., advisory board members 3.2, parents 2.5, and employers 3.0.

In reply to the question concerning the use of wide publicity in the promotion of the program at its beginning, the group responded with 86 percent indicating wide publicity was used. The overall importance of publicity in promoting the program in its beginning was 2.9 with the high rating 3.4, by guidance personnel and the low, 2.5, by the teachers of agriculture.

Many methods of obtaining publicity or public awareness of the program were used by the ten school districts involved in the study. Of these, eight of the ten used newspaper publicity. Other means of obtaining public awareness included such things as: radio programs, TV programs, use of printed material, public meetings, PTA meetings, FFA banquets, student interest surveys, personal visitations, school printed brochures, open-houses, demonstration plots and various types of exhibits.

Of the sample, 73 percent indicated that they had used exhibits in the promotion of their programs. Advisory board members felt that these exhibits were the most important in publicizing the new program as compared to teachers who rank these exhibits as the least important in promotion. Among the types of exhibits used by school districts in promoting programs were: former students' success stories, open-houses, fairs, TV programs, school assemblies, bulletin boards, conservation exhibits, floral arrangements, landscape and greenhouse displays.

Schools generally involve students in these public relations activities, with 90 percent indicating student involvement.

Among the types of demonstration used were grass plots, forestry thinning and pruning, school ornamental horticultural plots and demonstrations within the greenhouse. These demonstrations were presented to garden clubs, PTA groups and other community organizations.

Objectives of the Program

When the school board, advisory board members and school personnel groups were questioned concerning the objectives of the program, entry level skill rated highest in importance with 44 out of 46 people indicating this as an objective they held for the program. The importance rating for these groups was 3.3, with a range of 3.0 to 3.5.

The second most important objective identified by these groups was that of maintaining eligibility for additional training beyond the high school level. On this question 40 out of the 46 indicated that it was an objective they held for their particular program.

Almost as many of the people interviewed considered vocational exploration a valid objective of the program. A total of 38 out of the 46 suggested that they held this as an objective in their particular program. More importance was attached by school board members, teachers of agriculture and guidance personnel to this as an objective than by the administrators and advisory board members. The overall mean rating for this item was 2.9.

Some additional objectives were reported by respondents. Among these were: improved community relations, a knowledge of economics of agricultural business, quality instruction, development of avocational interests, more opportunity for disadvantaged students, prevention of dropouts, opportunities for adult underprivileged, broadening experiences for all students, and preparation for the role as the head of a family.

The opportunity was provided for respondents in the interview to make open-end answers to a number of questions. Other concerns listed by the group in addition to those listed on the questionnaire and summarized here included a wide range of topics. These ranged from concern of the teachers for student recruitment, class size, size of facilities and the levels of ability of the students. Administrators and guidance personnel were concerned with such items as scheduling college preparatory requirements, overlapping and competition with other school programs, and articulation within the school. Parents indicated concern with such items as the quality of the training, the time lost by students in travel, the destruction of demonstration plots by uninterested youths, and the plan of organization in the local school as compared to that in an area or the regional center. Employers were concerned with the minimum wage law, supervision, teacher planning time, facilities, the depth of teacher preparation, the students' level of interest, the students' backgrounds, the ability of the student to take part in extra-curricular activities, and the interest of people in the community. Students and former students interviewed showed concern over the amount of time lost in travel, loss of contact with classmates in the home school, less identification with FFA and the number of units of credit given in comparison to other school programs.

Students, parents, employers, advisory board members and school board members in general had many kind words for the programs in their districts.

DISCUSSION

Comparison of Highest Importance Ratings of Interviewees

The items the teachers of agriculture rated highest in degree of importance centered about subject matter specialization, uses of a survey in starting these programs, public relations or communications, the use of joint planning meetings with other personnel involved in the programs, the availability of such facilities as greenhouses, the objectives of the program, and use of community resources and people. These items show a concern for working conditions and for their relationship with other people with whom they work.

The school administrators interviewed gave a high rating to such items as: working with trade organizations, payment of all laboratory costs by the school, the contacts with local dealers, the use of a survey in these new programs, joint planning meetings of people who would be affected by the programs, the use of teachers in their specialized areas, work experience placement with the school's aid in locating work opportunities, specialized facilities, communications with others and the entry level objective of the programs. These items indicate the concern of the administrators with facilities, preparation of the teachers and working relationships within the community.

The guidance personnel interviewed gave higher ratings to items dealing with equipment, course design changes, objectives (especially those relating to post-high school training), joint meetings with personnal and planning these programs, the contacts with people in the community, use of community resources, and the public relations or publicity activities involved in starting these programs. These items indicate a concern on the part of guidance personnel for course scheduling and similar activities.

The school board members interviewed gave high ratings of importance to the visitation of other programs, facilities available, the use of community people and resources in the programs, the help in placing boys or girls for work experience, the use of joint planning meetings, pay for work experience, and the program's response to community changes. These items, perhaps, indicate a concern of school board members for matters that might be called policy. Perhaps it should be noted that the school board member sample was extremely small. However, their responses were very similar for the most part.

The advisory board members in the sample indicated high importance ratings for items dealing with facilities, working with local dealers, the use of an advisory board, working with trade organizations, and concern with the objectives listed for the program. These items indicate major concern for the relationships of the programs to the community and for provisions of facilities to operate a quality program.

Parents and employers gave their highest ratings to those items dealing with the work experience program and to the involvement of community people in the programs.

Starting the Program

Consistent high ratings were given to the items under the heading "Starting the Program" by all interviewees who were questioned concerning these items. The one exception was, "Were visits made to other similar programs in planning for your program?" The lower ratings accorded this item by the mean of the group could be attributed to the fact that these were the initial programs and for many of these people no similar program was available for such a visit.

The very strong support for joint meetings of teachers, guidance personnel and administrators during the planning stages of these new programs emphasizes the importance of involving all people who will be affected by a program in its planning.

Work Experience

The use of work experience as part of the program received wide support by the groups interviewed. All groups in the sample rated this important to very important. The four lay groups rated it slightly higher in importance than did the three professional groups. Some division of opinion appeared in the reply to the question, "Does the school help students find work experience jobs?" The majority of the sample favored such help although there were those who felt that the students should obtain these jobs for themselves thereby benefit from the job hunting experience.

Respondents were less sure about the degree of involvement for employers in planning work experience programs than they were about the importance of the experience. Parents and employers were the least sure of the importance of employer participation in planning.

In the matter of pay for students who spent time in work experience programs, 74 out of 79 indicated that students should be paid. Many persons commented that ideally the student should be motivated to participate in work experience in order to develop saleable skills. However, they recognized the practical viewpoint that pay would be necessary as an incentive to the student to develop this skill and be of value to the employer. The student's presence in an employer's business should be of benefit to the employer as well as the student.

Facilities

Land laboratories were deemed important for two of the special programs -- the conservation and ornamental horticulture programs. Teaching and library materials were a definite problem to teachers beginning these specialties for the first time. This problem tended to decrease as teachers gained experience in finding sources of these materials.

Community Concerns

Many opportunities exist within a local community for special help in terms of resources and personnel in the area of specialized programs. The responses of those surveyed indicated the use of such resources were important to the success of the programs.

A large number of reasons for changes from the traditional to the specialized programs and courses of study were elicited during the conduct of the study. Most of these, however, pertain to the changes within the community and response to its needs.

The importance of good working relationships with local dealers was emphasized by the degree of interest indicated by dealers in the specialized programs. Some of the widest division of opinion obtained during the study related to the point of working with trade organizations. Administrators believed that such working relationships were very important, while dealers themselves and the school board members considered them of little or no importance.

Public Relations

Communications were a concern though not considered a problem by the vast majority of the people interviewed. The interviews conducted strongly indicated that the professional people felt communications were better than was actually the case. Lay people failed to understand these programs until they had some close personal contact with the program. Parents had questions concerning items covered in previous publicity releases. At the time their sons or daughters became involved in local programs they were ready to receive this information. This indicates that the same story must be told several times if all of the groups concerned are to become adequately informed. Professional people would do well to gear the informational releases to the "readiness" stage and to repeat it when additional people reach this stage.

The use of exhibits and demonstration plots were considered by many in the study to be valuable means of acquainting the general public with the work of these special programs. Special events, such as open houses, that relate the specialized program to what people do, or are familiar with, were described as most effective.

Insurance and Liability Concerns

In the original interviews with teachers insurance and liability were named by a number of teachers as an important concern in starting a new program. However, this item appears with a very low importance rating by all people interviewed during the survey. This probably indicates that the insurance and liability concerns were considered carefully and corrective action taken if needed. This led to the immediate loss of concern about these two items. A technique described by a number of the respondents was the request for their insurance carrier to consider the problem and make recommendations. These recommendations were put into the school insurance or liability program and no further actions needed to be taken.

Transportation and Travel

Transportation was another item that required a solution at the start of the new program and then became of less importance to the groups concerned. The teachers were more concerned about this problem than were the other groups. The lay groups showed little concern over transportation. However, time spent in travel to area centers was a concern voiced by several parents, board members and students. Additional planning time needs to be spent in an effort to reduce this loss in training time.

Objectives of the Program

The major objectives identified by the teachers found wide acceptance with the remainder of the sample group. The respondents were concerned with the opportunity for youth to develop entry level skills, to explore these fields and to broaden their experience.

Area Program Concerns

The six items identified as area program concern received relatively low importance ratings by the majority of those people in the survey. The one exception to these low ratings was the item, "In a specific program does one teacher act as coordinator?" which received a rating of important by all groups except the administrators. Some of the schools indicated that in the beginning such things as scheduled starting times created problems until the administrators, guidance personnel and teachers met and worked out mutually satisfactory solutions to the problems. These types of items need to be anticipated and advance planning carried out to reduce the possible conflict.

Other Administrative Concerns

Written policy was deemed advisable by the majority of the people involved although it received only a rating of some importance. Most of this group believed that some written guidelines should be developed prior to initiation of the program. However, most of these people held such policy should not be fixed but flexibile and modified as experience indicated the need.

Most of the people interviewed believed that preliminary agricultural courses should not be required of students prior to entering a special program. The majority of this group felt that a boy or girl making up his mind to explore one of these fields should not be handicapped by having to start with a basic course. They suggested that these students should realize the possible handicap they would face in not following the entire sequence. They were convinced that the advantages of such late entering outweighed the disadvantages of content missed earlier.

Individual schools must make their own decision as to the sequence of courses required in the specialty programs. Most of the teachers of agriculture recommended agriculture 1 and 2 although they did not require these courses in their special programs.

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Conclusions and Implications

One of the most distinguishing characteristics of these successful programs was the degree to which adequate pre-planning took place. The evidence of this pre-planning can be seen in the importance ratings of surveys, help from the State Education Department personnel, use of joint meetings of all people involved in the program during the planning, visits to other similar programs and interviews with local dealers in regard to these new programs. This would imply the importance of adequate planning in starting new programs.

Work experience is a valuable part of any specialized occupational program. Employers are eager to obtain new employees with pre-employment experiences and are willing to use their facilities in helping make these experiences possible for high school students. Parents perceive these experiences as valuable for their children. All students or former students interviewed believed this was one of the most valuable parts of their high school experience.

Students should be paid for the time spent in the on-the-job portion of their specialized program. Minimum wage laws, insurance and liability must be dealt with in the pre-planning. The employers should be brought into the planning as it affects the use of his facility and the skills to be taught on-the-job.

Facilities suitable to the specialties being offered are important. One of the major advantages in the development of these specialty programs has been the availability of special resources to provide more adequate facilities and equipment. These resources have contributed to improving the quality of instruction.

Community resources and people can be used to advantage in the new program. This provides opportunity for the students to view this specialty in its natural setting and opportunity to involve these persons in the program. Local dealers and trade organizations are important in these new programs. Their support can provide much help to the new specialty. In particular, this help may take the form of resource people and work stations for the experience portion of the training program.

Public relations or communications are a continuing concern in any specialized program. Advantage should be taken of all appropriate means of bringing the specialized programs to the attention of the public. Means in addition to news media and meetings are exhibits and demonstrations. These have been used to good advantage in successful innovative programs.

Insurance and liability can be covered under most existing school policies. A check of the current policies should be made to determine if these new programs need any special coverage.

No great degree of concern was evidenced in regard to transportation of students. However, a point made by a number of respondents was a concern for the amount of time necessary to travel from the student's home to the local school and then to the center or area program. Additional effort needs to be made toward keeping travel time to a minimum.

Where an area program is concerned, careful attention in planning is needed to resolve differences in marking systems, student regulations or scheduled starting times. Where part of the program is operated on a local school basis and the specialized portion on an area basis, clear understandings of responsibilities between the two programs needs to be provided or defined.

A consulting committee or advisory board is an important asset in planning and conducting these specialized programs. When these advisory groups are composed of people knowledgeable in these specialized areas, particular help can be given to the instructors in giving these programs direction. They can explore policy matters and provide the policy making group with recommendations based on their studies and intimate knowledge of the specialty. In addition these advisory groups are important liaison agencies between the school and the lay public.

Teachers of agriculture need to be involved in the follow-up of former students. Current knowledge of the status of these graduates can be of considerable value in program planning and development.

The area school type of organization in New York State has created some organizational problems with the FFA youth organization. Attention needs to be paid to the solution of these problems by teachers involved in new programs.

Some written policy is desirable even at the beginning of a new specialized program. Guidelines are needed for operation of these specialties by teachers, administrators and guidance personnel. These written policies should be based on the experiences of programs already in operation. They should be flexible and allow for developments and revisions as experiences within the local school or area program dictate.

Schools should pay all instructional cost incurred in the laboratory. Pressure should not be on teachers for sales to finance laboratory or other educational experiences.

Specialized programs require teacher specialization in instructional areas. With such specialization it is possible to make more rapid improvement in the competencies of the teachers through in-service training.

Recommendations

1. In innovating new programs, surveys should be used as a means of assessing interests and as an informational tool to acquaint students and the public with the new program.

2. Innovators should make extensive use of State Department of Education personnel.

3. Planning sessions for new programs should involve administrators, school board, advisory board members, teachers, guidance department personnel, parents and employers.

4. Innovators should make extensive use of visits to successful programs by planning committee members.

5. Local dealers in the specialty being innovated should be informed of program plans.

6. Provision for experience in the special field should be provided for all students either on the job in business establishments or in school facilities.

7. Work experience should be as realistic as possible.

8. The school should control the quality of the work experience obtained by students. This may require selection of work stations and extensive help in student placement.

9. Employers should be involved in planning work experience programs at their establishments.

10. Adequate facilities must be provided for development of quality programs. Provision should be made for current as well as future enrollment.

11. The community should be adequately informed about the new program and involved in planning and conducting such programs.

12. Programs should be based on employment opportunities in agricultural occupations in the community and nearby labor market areas.

13. In multi-teacher departments, one teacher should be designated as coordinator.

14. Pre-planning should involve hours of credit, marking systems, insurance, transportation, student regulations, scheduling and many other details so that these items do not grow into major concerns.

15. Follow-up studies and information should be evaluated continually for implications for curriculum revision.

16. Opportunity for introductory or exploratory experiences in courses (for example, Agriculture 1) are desirable before entering a specialty, if the student is to profit most from advanced training.

A more detailed list of recommended guidelines for innovating specialty programs is included as Appendix G.

SUMMARY

An effort was made to assess innovative secondary programs in off-farm agricultural occupations. Ten high schools were selected in New York and Connecticut representing programs in agricultural business, agricultural mechanization, conservation and ornamental horticulture.

Teachers were interviewed and questionnaires developed from materials expressed in these interviews. Teachers of agriculture, school administrators, guidance personnel, school board members, advisory board members, parents, employers and students were surveyed with this schedule to determine the use of innovative practices and their importance.

These successful innovative programs appeared to have a number of common characteristics. Some of these were:

1. A depth and care in pre-planning that involved professional and lay groups who would be concerned in the conduct of the program.

2. The advice and counsel of State Education Department personnel.

3. A high degree of concern for a practical application of the skills learned in school in on-the-job situations. Work experience was held as highly desirable by the participants.

4. Extensive efforts were made to provide the new programs with adequate equipment and facilities.

5. These schools made extensive use of community facilities and resource people in the conduct of these programs.

6. Efforts were made in these schools to continually inform the public through news media, exhibits and demonstrations.

7. Considerable attention was given to such items as insurance and liability, transportation and travel, scheduling and other details so that these did not become major problems in the operation of the program.

8. In the planning and operation of these programs an advisory group was used extensively.

9. In these programs all laboratory costs were borne by the schools.

10. These programs provided for teacher specialization.

PART II

ARTICULATION

Brief Restatement of the Problem

This aspect of the study was concerned with the development of a plan for improved articulation of off-farm agricultural occupation programs at the secondary school and post-high (agricultural and technical colleges) level as regards pupil selection, skill and competence level, curriculum content, and entry job level of students in both programs.

Definition of Terms

For the purposes of this study, the following definitions were used:

Articulation - The process of orderly transfer and progression from one level of educational offering to the next higher level. This process generally involves joint concerns between more or less independent units. (See page 4 for a more complete description of the process by Seay (7).)

High School Programs - Educational programs for pupils in grades 9-12 inclusive. In some schools, course offerings may be confined to grades 11 and 12.

Technical College Programs - Educational programs for students in grades 13 and 14 which lead to the Associate Degree in specialized areas.

METHOD

The method of inquiry was basically that of two-way communication between staff members at both levels of instruction. Teachers of agriculture at the high school level in specialized areas and their counterparts at the technical college level comprised the group. This two-way communication was fostered by two conferences which were held to review the major issues involved. An analysis of course offerings, procedures used in pupil selection, the skills and competencies taught, and the jobs which graduates of both programs fill upon graduation was made by the project staff with the help of the consultants. Visits to existing programs in high schools and technical colleges also provided insights to the investigators in analyzing the programs.

The specific steps outlined in the project were as follows:

Step 1. Identifying the curriculum areas to be studied.

Step 2. Securing course outlines of high school and college programs in these areas and/or courses of study.

Step 3. Visiting selected institutions to observe the programs.

Step 4. Holding a series of conferences with representatives of high schools, state education departments, and technical colleges to study curriculum offerings.

Step 5. Making recommendations and suggestions regarding improved articulation and understanding of the programs.

Step 6. Preparing a report with suggested guidelines for improving the articulation of high school and technical college programs in agriculture.

Step 7. Dissemination of the findings to high schools and post-high school institutions throughout the Northeast.

RESULTS

The results from the steps listed in the previous section are presented in brief form.

Step 1. The curriculum areas of agricultural business, agricultural mechanization, conservation and ornamental horticulture were selected for study.

Step 2. Courses of study for high school offerings were reviewed and summarized into major subject matter areas. Individual courses at the technical college level were reviewed for objectives, content, and level of instruction.

Step 3. High school (10) and technical college (6) programs were visited and individual staff members contacted regarding their specialized instructional area.

Step 4. Two one-day conferences were held at Cornell University at which time representatives of the institutions participating in the study plus representatives of the State Education Departments of New York and Connecticut attended. In addition, a number of four-year college staff members (from New York State College of Agriculture) also served as consultants. (See Appendix F for copies of conference programs and proceedings.)

Step 5 and Step 6. This report incorporates conclusions, implications and recommendations. Specific suggestions for improving articulation can be found in the Summary section.

Step 7. The report of this study will be distributed to all participants, to public high schools in New York and Connecticut and other interested individuals or institutions in the Northeast and throughout the country.

DISCUSSION

For purposes of reporting, this part of the report is divided into the four curriculum areas studied and information presented regarding the four factors of (1) pupil selection, (2) skill and competencies taught, (3) content of program (curriculum), and (4) entry job levels for which the programs purport to train. High school and technical college levels are presented separately.

Agricultural Business - High School Level

Introductory Statement - Agricultural business at the high school level became a regular offering in New York high schools in 1965-66. During that year, seven programs of agricultural business were offered. In the current year (1966-67) 12 schools offer the program. A suggested state course of study was developed jointly by members of the Bureau of Agricultural Education, State Education Department, and the Division of Agricultural Education, New York State College of Agriculture at Cornell University. This course of study was approved and distributed to administrators and teachers in June 1965 by the Bureau of Secondary Curriculum Development, New York State Education Department. A further revision of this course of study was made in 1966.

To our knowledge, no specific course of study has been developed in Connecticut in agricultural business. Individual schools may adapt local programs (courses of study) to reflect needs of employers in the agricultural business field.

1. Pupil Selection - Pupils who expressed interest in the course, who were able to schedule it, and who were acceptable for enrollment after a personal interview with the teacher constituted the enrollees. Counselors often made the initial referral, with the teacher of agriculture making the final selection of pupils to be admitted to the course.

2. Content of Course - The introductory course in Agricultural Business 3, deals primarily with basic business practices and understandings applicable to businesses who primarily engage in providing goods or services to farmers and homeowners. The Agricultural Business 4 course is concerned with the advanced aspects of these same areas, with emphasis on principles of organization and management of such businesses.

3. Skills and Competencies Taught - Beginning or entry level skills in sales and service occupations, including agricultural product information, constitute the major areas of instruction. Laboratory and work experience on-the-job provide opportunity to carry out the actual skills involved. These included such skills as: selling, record keeping, use of business machines, personal, and social development.

4. Entry Level Jobs Which Students May Take Upon Completion of the Program - No students have yet completed the program but it is presumed that they would fill such positions as the following:

1. Retail sales clerk in an agricultural supply business (feed, seed, fertilizers, plants, etc.).

2. Retail sales clerk in a home or garden supply center.

3. Stock clerk in an agricultural supply business.

4. Route salesman for an agricultural business (seed, fertilizer, feed, etc.).

5. Others.

Agricultural Business - Technical College Level

Introductory Statement - Agricultural business has long been one of the major options available to students in technical college programs in agriculture. The increased need for knowledge of agricultural products, coupled with specialized services to agriculture, has increased the need for trained workers in this area. Each of the agricultural and technical colleges in New York as well as the Hicks School of Agriculture at the University of Connecticut currently offer programs in this area. In most cases, the basic business courses are provided by the Business Division of the respective college. The technical agriculture and agricultural business areas are given by the Agricultural Division.

1. Pupil Selection - The standard requirements for entry into a unit of the State University of New York (SUNY) (10) generally includes the following: 10 specific units of high school credit (plus high school graduation), satisfactory performance on the State University Admission Test, and such other requirements as individual colleges or programs specify.

2. Content of Program - All programs lead to the AAS Degree. Generally, a minimum of 64 semester credit hours are required, including courses in general education (approximately 50 percent) and the remainder in the special field. The typical courses include accounting, business law, sales and finance, cooperatives, and marketing as related to agriculture businesses.

3. Skills and Competencies - The why as well as the how constitute the actual training received by students. Principles of business management coupled with specific skills in salesmanship, merchandizing, and other aspects of a retail or wholesale business are included.

4. Entry Level Jobs - District salesman, sales department manager, and other middle management positions are generally filled by graduates. Graduates may start at lower level jobs in order to learn the business but generally progress to managerial type positions. Proven ability often leads to top level management positions in many agricultural businesses.

Agricultural Mechanization - High School Level

Introductory Statement - The typical program in agricultural education over the years has included instruction in the mechanical aspect of farming. The instructional areas of farm shop, farm electrification, farm power and machinery, farm buildings and structures and soil and water mechanics were the main concerns. Generally, these subjects were closely allied to production agriculture and taught as a part of the agricultural curriculum in the local school shop facility.

In 1958, steps were taken in New York to provide more specialized training in this area. Course offerings, entitled Agricultural Mechanics became a part of the program. Pupils could elect this course with or without the related instruction in agricultural production. Farm power and machinery generally received more attention than in previous years.

As part of the major course changes taking place in 1965, Agricultural Mechanization became the official title. The suggested state course of study, encompasses the instructional units listed under the curriculum content.

1. Pupil Selection - Most students in agricultural mechanization courses will likely have had the introductory agricultural courses (Ag. 1 and 2). Because of professed interest in the

mechanical aspects, they have chosen to concentrate in this area. In some area schools, pupils may not have had opportunity to study agriculture in home schools, and may therefore be enrolled for the first time in an agricultural course. They may, however, have had a course or courses in industrial arts or related subjects. Some pupils may have taken aptitude tests administered by the guidance staff.

2. Skills and Competencies - The basic skills of operation, adjustment, and maintenance of agricultural power and machinery, including materials handling, as well as the practical application of shop management are generally covered in the course. Specific skills are developed both in the laboratory (shop) and in directed work experience programs.

3. Curriculum Content - The proposed state course of study, in New York, includes the following units.

	Area	Double Periods
I	Shop Management	14
II	Job Opportunities and Training Needs	17
III	Developing Advanced Skills in Agricultural Mechanization	35
IV	Tractors and Engines	165
V	Soil Preparation Equipment	19
VI	Planting, Fertilizing and Seeding Equipment	25
VII	Cultivating Equipment	15
VIII	Harvesting Equipment	63
IX	Materials Handling Equipment	55
X	Agricultural Structures	70
XI	Soil and Water Management Equipment	30
	Total	508

Since this number of periods exceeds the time available in most schools, teachers must make a selection of areas to be taught. Again, because of past experiences and training, areas III and IV are likely to receive increased attention along with concentration on whatever equipment is most common in the community.

4. Entry Level Jobs - Most students aspire to be machinery or equipment mechanics in agricultural machinery concerns. They may also fill such positions as machinery set-up man, parts helper, or other entry level jobs of a skilled nature.

Agricultural Mechanization - Technical College Level

Introductory Statement - Agricultural Engineering Technology was one of the early specialized offerings at most technical colleges. With advancing technology in all fields of agriculture, the advancement in agricultural mechanization and materials handling was a necessity if labor utilization was to reach desirable levels. Early programs concentrated on power and machinery with emphasis on maintenance and operation. Programs today, however, are centered on the technical aspects of agricultural engineering with emphasis on the principles underlying the operation and maintenance of machinery, equipment and other mechanical devices.

Present programs are labeled Agricultural Mechanics, Agricultural Engineering Technology, or Agricultural Equipment Technology. Options exist within certain programs which permit the student to further specialize his training to match his interests. Examples of this are agricultural power, agricultural structures, agricultural equipment, or refrigeration.

1. Selection of Pupils - With the emphasis on principles of operation, students who enter this program must have sufficient background in mathematics and physics in order to be successful. Increasing attention is being given to such areas as design, strength of materials, dynamics, and other technical subjects. Some technical colleges require pupils to take aptitude tests to help determine their possible success in the program. Concentration upon the more applied courses in agricultural engineering, coupled with courses in production agriculture or agriculture business may be an alternative for those students unable to master the minimum mathematics.

2. Skills and Competencies Taught - Whereas pupils at the high school level concentrate upon the applied aspects of machinery and equipment, the technical student gives attention to the theoretical aspects of the machine and its operation as well. These may include advanced testing and diagnostic equipment and the actual solving of theoretical problems of design.

3. Curriculum Content - The following programs and courses are offered in the institutions indicated.

Alfred - (2 options) - 1. Agricultural Structures and Electrification
2. Agricultural Power Machinery

Courses:

Agricultural Machinery
Agricultural Tractors and Engines
Agricultural Structures
Agricultural Electrification
Agricultural Products Handling
Advanced Agricultural Structures
Welding
Advanced Agricultural Machinery
Internal Combustion Engines
Agricultural Equipment

Morrisville - Agricultural Engineering Technology

Courses:

Farm Mechanics
Welding 1 and 2
Principles of Farm Machinery
Farm Electrification
Automotive Engines
Tractors and Motors
Tractor Ignition and Fuel Systems
Drafting
Small Power Equipment

Canton - Agricultural Engineering Technology

Courses:

Farm Machinery
Field Machinery
Structures and Surveying
Power Machinery

Cobleskill - Agricultural Engineering Technology

Courses:

Farm Power
Agricultural Machinery Lab
Agricultural Machinery Maintenance
Welding
Agricultural Hydraulics
Agricultural Equipment 1 and 2
Agricultural Diesels
Agricultural Equipment Retailing

Delhi - Agricultural Engineering Technology

Courses:

Farm Power
Welding
Farm Machinery
Mechanics and Strength of Materials 1 and 2
Electric Power
Dynamics
Machine Design
Refrigeration
Instrumentation

Farmingdale - No specialized program exists in this field. Selected courses are available to meet needs of some students. Two courses offered under the mechanical power technology curriculum are tractor operation and maintenance and farm machinery.

Hicks School - No specialized offering is available in agricultural mechanization. Courses are designed to complement other curriculums.

Courses:

Farm Shop
Farm Power
Farm Machinery
Farm Structures
Farm and Home Utilities
Refrigeration

4. Entry Level Jobs - Typical jobs taken by graduates over the years have included:

Farm equipment mechanic
Farm equipment partsman
Farm equipment shop foreman
Refrigeration equipment operator and mechanic
Design technician
Farm service representative (Power Company or Electric Cooperative)
Service manager
Engineering aide
Welder
Stock clerk

Ornamental Horticulture - High School Level

Introductory Statement - Programs in ornamental horticulture have been underway in some high schools for over 30 years. However, the greatest expansion has occurred in the last 10 years and at an accelerated rate during the last three years. Because the field of ornamental horticulture is comprised of a number of major subject-matter areas, these programs have varied greatly. Emphasis may be on nursery management, greenhouse management, landscaping, turf, floriculture, or horticultural mechanics. In some cases, combinations of two or more of these major areas constitute the program. In no case does a program attempt to cover all of these areas.

In 1965, a suggested state course of study in ornamental horticulture was introduced in New York State. The first two courses, usually taught in the ninth and tenth grades when no other agricultural courses are offered, are introductory and preparatory in content. Course content includes the nature and importance of the ornamental horticulture industries, applied plant, soil, and pest control sciences, horticultural mechanics, and business management and marketing.

Courses designed for the last two years of high school include additional work in business management, marketing and mechanics. Landscape planning, construction and maintenance, greenhouse production and management, floral design and flower arrangement, nursery production and management, and turf growing and maintenance are among the major areas which are emphasized in specific advanced programs.

Each student is expected to complete 300 hours of actual work in the greenhouse, land laboratory or indoor laboratory. Since the amount of class time available is not enough to teach all the suggested units of study, each school selects those units offering training in skills most in demand.

1. Pupil Selection - Some pupils in ornamental horticulture will have had the introductory course of Ag. 1 or 2. This is especially true of up-state non-urban schools. In urban areas, the students will likely go directly in the ornamental horticulture course in the 9th or 10th grade. The Strong Inventory or Kuder Preference Test will generally have been administered by the Guidance staff. Pupils may have also visited the classroom and laboratory facilities as a part of the group guidance efforts. Past experience with plants or related materials may have also led some pupils to select the course. The teacher of ornamental horticulture assesses the actual interest of the pupil in the program and whether or not he is capable of mastering the content of the course.

2. Skills and Competencies - The nature, type and amount of skills to be developed will depend greatly on the program offered. In those programs which stress preparation for skilled level jobs, following high school graduation or completion of the program, the competencies needed by such workers become the core of the program.

Related science and management is taught to the ability level of the pupils. In other programs, more technical and management skills are stressed.

3. Curriculum Content - The proposed course of study includes the following instructional areas:

		1	2	3&4
I	Orientation and Guidance	35	15	
II	Importance of the Industry	15	0	
III	Applied Plant Science	55	30	
IV	Applied Soil Science	15	25	
V	Applied Pest Control Science	0	20	
VI	Applied Horticultural Mechanics	40	50	75
VII	Horticultural Business Management and Marketing	5	15	45
VIII	Personal and Social Development	5	15	
		170*	170*	
IX	Landscape Construction and Management			55
X	Landscape Planning			60
XI	Greenhouse Production and Management			110
XII	Floral Design and Flower Arrangement			35
XIII	Nursery Production and Management			55
XIV	Turf Growing and Maintenance			35
				350**

* Single periods
** Double periods

4. Entry Level Jobs - The beginning worker in the field, with secondary level training, is likely to enter one of the following areas:

Groundskeeper
Landscape Gardener
Nursery Worker
Landscape Maintenance Worker
Machinery Mechanic
Salesman (equipment, supply, or landscape materials - including plants)
Self-employment (custom work)
Tree service worker

Ornamental Horticulture - Technical College Level

Introductory Statement - Programs in ornamental horticulture were among the early specialized agricultural offerings at some technical colleges. These programs have now spread and further specialization has occurred. Whereas the catalogue listings at one time were mostly ornamental horticulture or simply horticulture, options are now entitled Landscape Development, Turf Management, Floriculture (and Floral Arrangement) and Nursery Management.

1. Selection of Pupils - The general requirements for admission to SUNY units apply to students who elect this major area of study. Aptitude in the plant sciences are needed by students in most programs. In the case of landscape planning and floral design students should be able to demonstrate artistic talent of a creative and innovative nature. Both boys and girls have ample opportunity within the field for areas of specialization which will draw upon their interests, abilities, and aptitudes.

2. Skills and Competencies Taught - Courses in the various curriculums range from basic plant science to applied floral design. The ability to visualize a design applied to an environmental setting is a part of many applied courses. In the merchandising aspect of the work, ability to meet people and to sell is necessary.

3. Curriculum Content - The following programs and options are available in the institutions designated.

Alfred - Horticulture

Options - Floriculture Production
Floriculture Marketing
Landscape Development

Cobleskill - Ornamental Horticulture

Options - Floriculture
Nursery Management

Delhi - General Agriculture (Plant Science)

Options - Students may choose courses in landscaping, woody plant materials, turf management and related technical agriculture.

Morrisville - Horticulture (applied courses in nursery management, floriculture and landscaping)

Farmingdale - Ornamental Horticulture

Options - Floriculture Merchandizing
Floriculture Production
Landscape Development
Nursery Management
Turf Management

Hicks School - Ornamental Horticulture

Options - Floriculture
Nursery Management

4. Entry Level Jobs - Students with technical training in the field have filled the following positions:

Floral Designer
Arborist
Flower Shop Manager
Grower
Garden Center Manager
Horticultural Inspector
Landscape Aide
Nurseryman
Park Supervisor
Golf Course Supervisor
Salesman
Self-employment (custom work)

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Conclusions

Based upon the series of conferences and personal visits to institutions offering programs at both levels and the analysis of existing programs, the following conclusions are drawn.

1. The number of specialized off-farm agricultural programs will increase at both the high school and post-high school level. Therefore, the chances for overlap, repetition, inadequate or less than maximum use of educational resources will increase.

2. Students who have been enrolled in the high school curriculums in these areas will matriculate in increasing numbers in the technical college programs.

3. The skills, competencies, and understandings developed in high school programs provide a base for beginning instruction in the technical college offerings.

4. Teachers at both levels need increasing opportunity to share information about their program in order to facilitate the best possible articulation.

5. The level of instruction at each institution (high school or college) is constantly advancing. With specialized programs now offered at the high school level, certain beginning courses at the agricultural and technical colleges may well be omitted by such students who go on for further education. Paper and pencil tests, combined with performance tests, are one answer as to whether a given student should take a beginning course.

6. Students at the technical college level who have not had instruction in the specialized area during high school, may well be assigned to special sections (in a given course) where the instructional program may be more nearly designed to meet their needs.

7. Conferences, seminars, or workshops for teachers in specialized areas should include representatives of both groups. In many cases, instructors at the agricultural and technical college level may well assist in providing needed in-service training in specialized areas for their counterparts at the high school level.

8. The actual work experience of students should be assessed to aid in determining level of skill and understanding. In some cases, students may be skilled but lack adequate understanding of the principles involved. In these cases, they might omit the laboratory or practice sessions and concentrate upon the subject matter involved.

Implications

1. The articulation of high school and technical college curriculums in agriculture will become of increasing concern to students and staff, to guidance counselors at the high school level and admission counselors at the technical colleges, and to the general public.

2. The best use of educational resources necessitates continued dialogue between the two groups concerned with the programs.

3. Instructors and administrators must be cognizant of the role each level of training is to fulfill. There is a need for both levels of training if proper articulation is to take place.

4. In-service training programs for instructors in both levels may be coordinated in some subject-matter areas.

5. Individuals preparing for teaching should identify the level at which they plan to teach (i.e. - high school or post-high school).

6. This study was not concerned with articulation of technical colleges and four year colleges. It nevertheless was pointed out that this process takes place at all levels and that attention should be given to improving this process as it relates to individuals continuing their education at the baccalaureate level.

Recommendations

The following recommendations are given for improving the articulation process between high school and technical college offerings in agriculture. Some of these recommendations have been carried out for a number of years, others are just being initiated, and some have yet to be implemented. A more detailed list of guidelines for articulation is included as Appendix H.

1. Provide each instructor at the technical college level with the state suggested high school course of study in his area.

2. Provide each instructor at the high school level with the course outline, objectives, and other information regarding course offerings at the technical college level in his specialty.

3. Continue "career days" and other guidance activities at agricultural and technical colleges for nearby schools.

4. Continue to urge technical college staff members to participate in county group meetings of high school teachers of agriculture in their area of the state.

5. Urge technical college staff members to attend and participate in annual state meetings of teachers of agriculture.

6. Devise measures cooperatively to determine level of training and background of technical college students who have had specialized training at the high school level, in order to "place" students in proper courses and/or sections of courses.

7. Permit mature students to take examinations for credit in lieu of regular courses.

8. Continue to cooperate in providing in-service training in specialized areas by workshops, courses, seminars, etc., sponsored jointly by state staffs in agricultural education, technical college staffs, and four year college groups.

9. Make college in-service courses or off-campus courses available to both staffs.

10. Continue efforts to inform teachers and counselors at the high school level regarding opportunities for study at the technical college level.

11. Organize a liaison group between agricultural educators at the high school level and their counterparts at the technical level which would meet at least once annually to share common concerns and suggest improved articulation procedures.

12. Encourage membership in professional organizations designed to upgrade qualifications, curriculums and other matters of professional concern.

SUMMARY

This section of the study was concerned with improving articulation of high school and technical college curriculums in agriculture. The major objectives were to improve understanding at both levels regarding the kind of programs offered, the procedures used in selecting pupils, the skills and competencies taught at each level, and entry level jobs taken by students completing the respective programs.

The methods used consisted of (1) personal visits by the research staff to the high schools and colleges involved in the study, (2) the holding of two one-day conferences with representatives of all programs in attendance plus outside consultants, and (3) the distribution of materials, courses of study, course outlines, and research reports to each group explaining the others programs.

The results obtained can best be described in terms of increased understanding and awareness by participants of the total educational program in agriculture, from grades 9-14 inclusive. The dialogue between the two groups was ample evidence that this transfer was taking place. The highlights of these findings suggest that opportunity to meet and discuss programs of mutual interest and concern must be provided if imporved articulation is to take place. It is not likely to take place automatically, since each group has its own major problems and assignments to carry out. A formal structure should therefore be set up to carry out this goal. Such a group may well be sub-divided into major instructional areas similar to those used in this study.

With the expansion of programs at both levels it becomes more essential that representatives of both groups sit down together to discuss mutual concerns. Only in this way will the groups be aware of possible overlap, duplication of educational offerings, the need for building upon one another's program, and the improved use of the public's tax money in providing the best possible educational programs for youths and adults.

It is further specifically recommended that representatives at the top echelon of leadership, the State Departments of Education and the administrators of State University units, clearly outline the major responsibilities of each group. This is essential if new programs in occupational education at the high school level, and in post-high school institutions (technical, community, or junior colleges) are to complement and supplement existing programs.

The local, regional, and state meetings of the respective groups of subject matter specialists should be open to all. This will provide continual opportunity for dialogue among the two staffs. It should also help develop a "total team" approach to the job of providing occupational education in agriculture.

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APPENDIX A

QUESTIONNAIRE MARKED TO SHOW QUESTIONS USED WITH VARIOUS GROUPS

Innovation Questionnaire

NAME ______________________________ DATE ____________, 1966

ADDRESS ____________________________ INTERVIEWER ______________

INSTRUCTIONS: Circle or check the appropriate number to represent the answers given by the respondent. Observe the optional questions that depend upon the first answer and use them when appropriate. For the importance of the concern, circle 4 if it is a very important concern, 3 if it is important, 2 if it is of some importance, 1 if it is of little importance, and 0 if it is of no importance.

								Groups Responding to Item			
	Yes	No	VI	I	S	L	O	PP	BM	P	E*
A. STARTING THE PROGRAM:											
1. Was a survey used in starting this program?	1	2	4	3	2	1	0	X	X		
1b. What kind of survey was used? Job opportunity, student interest, or other? ____________				1	2		3	X	X		
2b. If you were to begin a new program now, would you use a survey?	1	2	4	3	2	1	0	X	X		
2. Did you have help from State Education Department personnel?	1	2	4	3	2	1	0	X			
3. Were joint meetings of teachers, guidance personnel and administrators held in planning the new program?	1	2	4	3	2	1	0	X	X		
3b. Would you recommend this type of meeting in starting similar programs?	1	2						X	X		

*PP - Professional People BM - School Board and Advisory Board Members
P - Parents E - Employers

								Groups Responding to Item			
	Yes	**No**	**VI**	**I**	**S**	**L**	**O**	**PP**	**BM**	**P**	**E**
4. Were visits made to other similar programs in planning for your program?	1	2	4	3	2	1	0	X	X		
4b. Would you recommend this to others considering a similar program?	1	2						X	X		
5. Were local dealers interviewed in regard to such a program?	1	2	4	3	2	1	0	X	X		X
5b. Would you recommend this step to others considering a similar program?	1	2						X	X		
B. WORK EXPERIENCE:											
1. Does the school use work experience as part of the program?	1	2	4	3	2	1	0	X	X	X	X
1b. Do you recommend work experience to others?	1	2						X	X	X	X
2b. What is the yearly goal in hours per year? 1. Below 50, 2. 51-100 3. 101-150, 4. 151-200, 5. 201-250, 6. 251-300, 7. 301-350, 8. 351-400, 9. 400 or more.	1 2 3 4 5 6 7 8 9							X	X	X	X
2. Does the school help students find work experience jobs?	1	2	4	3	2	1	0	X	X	X	X
3. Does your program involve employers in planning the work experience program?	1	2	4	3	2	1	0	X	X	X	X
4. In your work experience program, are students paid?	1	2	4	3	2	1	0	X	X	X	X
4b. Would you recommend pay for time in work experience?	1	2						X	X	X	X

								Groups Responding to Item.			
	Yes	No	VI	I	S	L	O	PP	BM	P	E
C. FACILITIES:											
1. Were the facilities a concern in starting the new program?	1	2	4	3	2	1	0	X	X		
2. Does the school have a land laboratory for the program?	1	2	4	3	2	1	0	X	X		
2b. What type? __ Size? __	1	2						X	X		
3. Does the school have access to, or own, a greenhouse?	1	2	4	3	2	1	0	X	X		
3b. What type? School owned? Rented? Other ________				1	2		3	X	X		
4. Did you purchase new equipment for the program?	1	2	4	3	2	1	0	X	X		
4b. Is there a need for additional equipment?	1	2						X	X		
5. Have teaching and library materials been difficult to find?	1	2	4	3	2	1	0	X	X		
D. COMMUNITY CONCERNS:											
1. Were community resources used in the new program?	1	2	4	3	2	1	0	X	X	X	X
2. Were community people used in the new program?	1	2	4	3	2	1	0	X	X	X	X
3. Were community changes a reason for the new program development?	1	2	4	3	2	1	0	X	X	X	X
4. Were course of study changes to the new program the result of community need changes?	1	2	4	3	2	1	0	X	X	X	X

								Groups Responding to Items			
	Yes	**No**	**VI**	**I**	**S**	**L**	**O**	**PP**	**BM**	**P**	**E**
5. Have local dealers shown an interest in these new programs?	~~1~~	~~2~~	4	3	2	1	0	X	X	X	X
6. Are there any trade organizations in your area?	1	2						X	X		X
6b. Have you worked with these organizations?	1	2	4	3	2	1	0	X	X		X
E. PUBLIC RELATIONS:											
1. Do you feel that communications are a concern in the new programs?	1	2	4	3	2	1	0	X	X	X	X
2. Was wide publicity used in starting the new program?	1	2	4	3	2	1	0	X	X		
2b. What types of publicity were used? Newspaper __ Picture stories __ Radio __ Printed materials __ Public meetings __ Others __________ (Name)								X	X		
3. Have you used exhibits in promoting the new program?	1	2	4	3	2	1	0	X	X		
3b. What types of exhibits did you use? ____________________ ____________________								X	X		
4. Do you involve students in the Public Relations activities?	1	2	4	3	2	1	0	X			
5. Have demonstration plots been used to promote the program?	1	2	4	3	2	1	0	X	X		
5b. What types of demonstrations did you use? ____________________								X	X		

								Groups Responding to Item			
	Yes	No	VI	I	S	L	O	PP	BM	P	E
F. INSURANCE AND LIABILITY CONCERNS:											
1. Was insurance a concern in operating the new program?	1	2	4	3	2	1	0	X	X	X	
2. Was liability a concern in operating the new program?	1	2	4	3	2	1	0	X	X	X	
2b. How was liability handled? ______________________											
______________________								X	X		
G. TRANSPORTATION AND TRAVEL:											
1. Was transportation of students a concern in starting the new program?	1	2	4	3	2	1	0	X	X	X	
1b. How were transportation concerns worked out? ______________								X	X		
2. Is student and equipment transportation on field trips a concern?	1	2	4	3	2	1	0	X	X	X	
2b. How were these transportation concerns worked out? ____________								X	X		
3. Does the movement of the teachers between centers cause a concern?	1	2	4	3	2	1	0	X	X		
H. OBJECTIVES OF THE PROGRAM:											
1. Is an objective of your program entry level skill?	1	2	4	3	2	1	0	X	X		
2. Is an objective of your program vocational exploration?	1	2	4	3	2	1	0	X	X		
3. Is an objective of your program preparation for additional vocational or college training?	1	2	4	3	2	1	0	X	X		
3b. Should this be an objective of the program?	1	2						X	X		

	Yes	No	VI	I	S	L	O	Groups Responding to Item PP	BM	P	E
4. What other objectives do you have for the program? (Write additional objectives on the back of this sheet)	________							X	X		

I. AREA PROGRAM CONCERNS:

	Yes	No	VI	I	S	L	O	PP	BM	P	E
1. In the specific program, does one teacher act as coordinator?	1	2	4	3	2	1	0	X	X		
2. Are differences in the marking systems between feeder schools a concern?	1	2	4	3	2	1	0	X	X	X	
3. Have the feeder programs had inequalities that have caused concern at the center?	1	2	4	3	2	1	0	X			
4. Are differences in student regulations in the feeder schools a concern?	1	2	4	3	2	1	0	X	X	X	
5. Do scheduled starting times in the feeder schools cause concern?	1	2	4	3	2	1	0	X	X		
6. Are areas of responsibilities between local and BOCES programs clearly defined?	1	2	4	3	2	1	0	X	X		

J. OTHER ADMINISTRATIVE CONCERNS:

	Yes	No	VI	I	S	L	O	PP	BM	P	E
1. Did scheduling the program cause concern?	1	2	4	3	2	1	0	X			
1b. How were scheduling problems solved? ________								X			
2. Did scheduling work experience cause concerns?	1	2	4	3	2	1	0	X			X
2b. How were these schedules worked out? ________								X			

	Yes	No	VI	I	S	L	O	Groups Responding to Item PP	BM	P	E
3. Did you use an advisory council or board in planning for the new program?	1	2	4	3	2	1	0	X	X		
3b. Would you use an advisory board today if you were starting a similar program?	1	2						X	X		
3c. What is the composition of this advisory board? Farmers __ Business people __ Both __								X			
4. Does your school follow-up the graduates?	1	2	4	3	2	1	0	X	X		
4b. Will current knowledge of graduates status be of value to program planning and development?	1	2						X	X		
4c. Who should make this follow-up? Teacher __ Guidance personnel __ Administration __				1	2		3	X	X		
5. Are boys who could benefit from the production and management program entering the new programs?	1	2	4	3	2	1	0	X	X		
6. Has the new program caused any problems with the FFA?	1	2	4	3	2	1	0	X			
6b. What were these problems? ______________________ ______________________								X			
6c. How were they solved? ______________________ ______________________								X			
7. Have you a written policy for the operation of the program?	1	2	4	3	2	1	0	X	X		
7b. Would you consider a written policy desirable?	1	2						X	X		
7c. How soon should the written policy be developed? 1st year __ 2nd year __ 3rd year __ Later __				1	2		3	X	X		

6

									Groups Responding to Item			
		Yes	**No**	**VI**	**I**	**S**	**L**	**O**	**PP**	**BM**	**P**	**E**
8.	Do you require a student to take Ag. 1 and 2 before entering a specialty program?	1	2	4	3	2	1	0	X	X		
8b.	Do you recommend but not require?	1	2						X	X		
8c.	Students may elect any course without previous agricultural courses?	1	2						X	X		
9.	Are all lab costs borne by the school that sales are not a prime concern in greenhouse or similar areas?	1	2	4	3	2	1	0	X	X		
10.	Does your program involve teacher specialization?	1	2	4	3	2	1	0	X			
11.	Do you have any other special concerns? Record them below. (Indicate the importance of each.)								X	X	X	X

APPENDIX B

NUMBERS RESPONDING YES AND NO AND THE AVERAGE RATING OF IMPORTANCE OF THOSE RESPONDING WITHIN PROFESSIONAL GROUPS

Items	Teachers			Administra.			Guidance		
	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
A. STARTING THE PROGRAM:									
1. Was a survey used in starting this program?	13	1	3.2	7	3	2.4	8	1	3.1
1b. What kind of survey was used?									
1c. If you were to begin a new program now, would you use a survey?	7	4		2	4		1	3	
2. Did you have help from State Education Department personnel?	15	0	3.5	10	0	3.5	9	0	3.3
3. Were joint meetings of teachers, guidance personnel and administrators held in planning the new program?	12	3	3.0	10	1	3.1	7	2	2.9
3b. Would you recommend this type of meeting in starting similar programs?	12	3	3.4	9	1	3.4	8	1	3.6
4. Were visits made to other similar programs in planning for your program?	14	1		11	0		9	0	
4b. Would you recommend this step to others considering a similar program?	8	6	2.4	3	8	1.7	3	4	1.4
	15	0		11	0		9	0	

(Continued)

APPENDIX B
(Continued)

Items	Teachers			Administra.			Guidance		
	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
5. Were local dealers interviewed in regard to such a program?	11	3	3.0	8	1	3.0	3	4	2.2
5b. Would you recommend this step to others considering a similar program?	15	0		9	1		6	1	
B. WORK EXPERIENCE:									
1. Does the school use work experience as part of the program?	13	2	2.9	9	1	3.1	5	4	3.3
1b. Do you recommend work experience to others?	13	0		9	0		9	0	
2. Does the school help students find work experience jobs?	13	2	2.8	10	1	3.4	9	0	3.6
3. Does your program involve employers in planning the work experience program?	8	7	2.9	6	2	2.9	7	0	3.5
4. In your work experience program, are students paid?	12	2	2.8	8	1	2.9	6	1	3.3
4b. Would you recommend pay for time in work experience?	13	1		9	1		9	0	
C. FACILITIES:									
1. Were the facilities a concern in starting the new program?	11	3	2.8	7	2	2.7	6	3	2.7

(Continued)

APPENDIX B

(Continued)

Items	Teachers			Administra.			Guidance		
	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
2. Did you purchase new equipment for the program?	13	2	3.1	9	0	3.6	4		3.8
2b. Is there a need for additional equipment?	11	4		4	2		2		
3. Have teaching and library materials been difficult to find?	10	4	2.6	1	2	2.0	2	1	2.0
D. COMMUNITY CONCERNS:									
1. Were community resources used in the new program?	14	1	3.3	9	2	2.7	8	1	3.0
2. Were community people used in the new program?	14	1	3.3	9	2	2.8	8	0	3.6
3. Were community changes a reason for the new program development?	10	5	2.6	7	2	2.6	7	2	3.2
4. Were course of study changes to the new program the result of community need changes?	10	5	2.6	8	1	2.9	8	0	3.8
5. Have local dealers shown interest in these new programs?	13	1	2.6	7	1	3.6	8	0	3.1
6. Are there any trade organizations in your area?	6	9		5	6		2	6	
6b. Have you worked with these organizations?	5	1	2.3	4	0	3.8	2	1	2.0

(Continued)

APPENDIX B

(Continued)

Items	Teachers			Administra.			Guidance		
	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
E. PUBLIC RELATIONS:									
1. Do you feel that communications are a concern in the new program?	13	2	3.5	11	0	3.4	8	1	3.4
2. Was wide publicity used in starting the new program?	11	4	2.5	18	0	3.0	9	0	3.4
3. Have you used exhibits in promoting the new program?	9	5	2.2	7	3	2.4	6	1	2.6
4. Do you involve students in the Public Relations Activities?	12	2	3.0	9	1	2.9	8	0	3.4
5. Have demonstration plots been used to promote the program?	8	6	2.5	6	4	2.2	7	0	3.5
F. INSURANCE AND LIABILITY CONCERNS:									
1. Was insurance a concern in operating the new program?	4	10	1.2	1	10	0.3	4	2	2.2
2. Was liability a concern in operating the new program?	5	9	1.2	2	9	0.4	4	3	1.6
G. TRANSPORTATION AND TRAVEL:									
1. Was transportation of students a concern in starting the new program?	9	4	2.6	6	4	1.1	4	4	1.9

(Continued)

APPENDIX B
(CONTINUED)

Items	Teachers			Administra.			Guidance		
	Number		Ave. Rtg.	Number		Ave. Rtg.	Number		Ave. Rtg.
	Yes	No		Yes	No		Yes	No	
2. Is student and equipment transportation in field trips a concern?	10	4	2.3	1	9	6.0	1	7	0.5
3. Does the movement of the teacher between centers cause a concern?	5	6	1.3	3	2	0.7	3	3	1.7
H. OBJECTIVES OF THE PROGRAM:									
1. Is an objective of your program entry level skills?	15	0	3.4	11	0	3.4	8	1	3.0
2. Is an objective of your program vocational exploration?	14	1	3.2	8	3	2.2	6	3	3.0
3. Is an objective of your program preparation for additional vocational or college training?	14	1	2.9	7	4	2.3	8	1	3.7
3b. Should this be an objective of the program?	14	1		9	2		8	1	
I. AREA PROGRAM CONCERNS:									
1. In the specific program, does one teacher act as coordinator?	11	2	3.0	5	1	2.3	6	0	3.4
2. Are differences in the marking systems between Feeder schools a concern?	3	8	1.1	1	4	0.0	2	3	1.3
3. Have the feeder programs had inequalities that have caused a concern at the center?	4	6	1.3	1	3	0.3	3	2	1.3

(Continued)

APPENDIX B
(Continued)

Items	Teachers			Administra.			Guidance		
	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
4. Are differences in student regulations in the feeder schools a concern?	3	9	0.8	1	4	0.0	2	3	0.8
5. Do scheduled starting times in the feeder schools cause concern?	3	8	1.0	2	2	0.5	3	2	1.5
6. Are areas of responsibilities between local and BOCES programs clearly defined?	4	3	1.6	2	1	1.0	1	2	1.0
J. OTHER ADMINISTRATIVE CONCERNS:									
1. Did scheduling the program cause concern?	8	7	2.2	6	4	1.4	4	4	1.4
2. Did scheduling work experience cause concerns?	4	10	1.1	2	7	0.3	2	4	1.2
3. Did you use an advisory council or board in planning for the new program?	13	2	2.9	10	1	3.3	7	1	2.9
4. Does your school follow-up the graduates?	10	3	2.4	9	2	2.6	7	1	2.7
5. Are boys who could benefit from the production and management program entering the new programs?	9	3	2.3	1	6	0.2	2	3	0.8
6. Has the new program caused any problems with the FFA?	9	5	1.8	2	5	0.9	1	7	1.0
7. Have you a written policy for the operation of the program?	9	6	2.5	3	6	1.1	3	5	1.9
7b. Would you consider a written policy desirable?	14	1		7	1		4	5	

(Continued)

APPENDIX B

(Continued)

Items	Teacher			Administra.			Guidance		
	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
8. Do you require a student to take Ag. 1 and 2 before entering a specialty program?	3	12	1.1	2	6	0.4	1	6	0.7
8b. Do you recommend but not require?	11	3		4	4		2	5	
8c. Students may elect any course without previous agricultural courses?	10	4		3	4		6	1	
9. Are all lab costs borne by the school that sales are not a prime concern in greenhouse or similar cases?	12	1	3.4	10	0	3.6	5	0	3.0
10. Does your program involve teacher specialization?	14	0	3.6	10	0	3.4	9	0	3.3

APPENDIX C

NUMBERS RESPONDING YES AND NO AND THE AVERAGE RATING OF IMPORTANCE OF THOSE RESPONDING WITHIN LAY GROUPS

Items	School Board			Advisory Board			Parents			Employers		
	Number		Ave.	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
A. STARTING THE PROGRAM												
3. Were joint meetings of teachers, guidance personnel and administrators held in planning the new program?	4	0	3.7	6	1	2.9						
3b. Would you recommend this type of meeting in starting similar programs?	4	0		7	0							
4. Were visits made to other similar programs in planning for your program?	2	1	4.0	1	4	.6						
4b. Would you recommend this step to others considering a similar program?	4	0		7	0							
5. Were local dealers interviewed in regard to such a program?		0	3.0	6	1	3.4				12	6	3.1
5b. Would you recommend this step to others considering a similar program?	3	0		7	0							

(Continued)

APPENDIX C
(Continued)

Items	School Board			Advisory Board			Parents			Employers		
	Number		Ave.	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No.	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
B. WORK EXPERIENCE												
1. Does the school use work experience as part of the program?	3	1	3.0	6	1	3.3	13	4	3.1	14	1	3.7
1b. Do you recommend work experience to others?	4			7			15			17		
2. Does the school help students find work experience jobs?	4		3.8	5	2	2.4	14	1	2.9	13	3	2.7
3. Does your program involve employers in planning the work experience program?	3	1	2.8	6	1	2.6	7	4	1.8	8	10	2.2
4. In your work experience program, are students paid?	3	0	3.7	6	1	2.7	13	2	2.9	14	3	2.9
4b. Would you recommend pay for time in work experience?	3	1		7	0		17	0		16	2	
C. FACILITIES												
1. Were the facilities a concern in starting the new program?	1	1	2.0	3	4	3.2						

(Continued)

APPENDIX C
(Continued)

Items	School Board			Advisory Board			Parents			Employers		
	Number		Ave.	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
2. Did you purchase new equipment for the program?	3		3.0	4		3.8						
2b. Is there a need for additional equipment?	3			1								
3. Have teaching and library materials been difficult to find?		1		1		4.0						
D. COMMUNITY CONCERNS												
1. Were community resources used in the new program?	4		3.7	7		3.4	15	1	3.1	11	5	2.4
2. Were community people used in the new program?	3	1	4.0	7		3.3	12	3	2.7	11	5	2.1
3. Were community changes a reason for the new program development?	3		2.0	6		3.4	12		2.9	9	6	1.9
4. Were course of study changes to the new program the result of community need changes?	3		3.5	6		3.4	12		2.9	10	5	2.3

(Continued)

APPENDIX C
(Continued)

Items	School Board Number Yes	School Board Number No	School Board Ave. Rtg.	Advisory Board Number Yes	Advisory Board Number No	Advisory Board Ave. Rtg.	Parents Number Yes	Parents Number No	Parents Ave. Rtg.	Employers Number Yes	Employers Number No	Employers Ave. Rtg.
5. Have local dealers shown an interest in these new programs?	2		3.5	7		3.7	16		3.3	18		3.6
6. Are there any trade organizations in your area?		3		4	1					4	13	
6b. Have you worked with these organizations?		1		2		3.5				2	10	7
E. PUBLIC RELATIONS												
1. Do you feel that communications are a concern in the new program?	4		3.3	6		3.2	10	7	2.5	14	4	2.9
2. Was wide publicity used in starting the new program?	2	1	3.0	6	1	2.9						
3. Have you used exhibits in promoting the new program?	3	1	2.5	6	1	2.9						
4. Have demonstration plots been used to promote the program?	2	0	2.5	5	2	2.1						
F. INSURANCE AND LIABILITY CONCERNS												
1. Was insurance a concern in operating the new program?	1	3	0.5	2	4	0.7	2	13	0.4			

(Continued)

APPENDIX C
(Continued)

Items	School Board			Advisory Board			Parents			Employers		
	Number		Ave.	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
2. Was liability a concern in operating the new program?	1	3	0.5	2	4	0.7	2	13	0.4			
G. TRANSPORTATION AND TRAVEL:												
1. Was transportation of students a concern in starting the new program?	0	3	0.0	1	6	0.2	3	12	0.6			
2. Is student and equipment transportation in field trips a concern?	0	4	0.0	0	7	0.4	0	15	0.0			
3. Does the movement of the teacher between centers cause a a concern?	0	4	0.0	1	3	1.0						
H. OBJECTIVES OF THE PROGRAM:												
1. Is an objective of your program entry level skills?	4	0	3.3	6	1	3.5						
2. Is an objective of your program vocational exploration?	4	0	3.5	6	1	2.9						

(Continued)

APPENDIX C
(Continued)

Items	School Board			Advisory Board			Parents			Employers		
	Number		Ave.	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
3. Is an objective of your program preparation for additional vocational or college training?	4	0	3.5	7	0	3.5						
3b. Should this be an objective of the program?	4	0		6	0							
AREA PROGRAM CONCERNS:												
1. In the specific program, does one teacher act as coordinator?	1	0	3.0	3	1	2.7						
2. Are differences in the marking systems between Feeder schools a concern?	0	1	0.0	0	3	0.0						
3. Have the feeder programs had inequalities that have caused concern at the center?							1	8	2.2			
4. Are differences in student regulations in the feeder schools a concern?	0	1	0.0	0	3	0.0						

(Continued)

APPENDIX C
(Continued)

Items	School Board			Advisory Board			Parents			Employers		
	Number		Ave.	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
5. Do scheduled starting times in the feeder schools cause concern?	0	1	0.0	1	2	0.7						
6. Are areas of responsibilities between local and BOCES programs clearly defined?	0	1	0.0	1	1	0.0						
J. OTHER ADMINISTRATIVE CONCERNS:												
1. Did you use an advisory council or board in planning for the new program?	4	0	3.5	7	0	3.6						
2. Does your school follow-up the graduates?	2	0	2.5	4	2	2.0						
3. Are boys who could benefit from the production and management program entering the new programs?		2	0.0	1	4	0.0						
4. Have you a written policy for the operation of the program?	1	1	0.0	4	2	2.2						
4b. Would you consider a written policy desirable?	3	0		4	1							

(Continued)

APPENDIX C
(Continued)

Items	School Board			Advisory Board			Parents			Employers		
	Number		Ave.	Number		Ave.	Number		Ave.	Number		Ave.
	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.	Yes	No	Rtg.
5. Do you require a student to take Ag. I and II before entering a specialty program?		1	3.0	4	1	2.3						
5b. Do you recommend but not require?	2			1	2							
5c. Students may elect any course without previous agriculture courses.	2				2							
6. Are all lab costs borne by the school that sales are not a prime concern in greenhouse or similar areas?	2		3.5	5		3.5						

APPENDIX D

LIST OF HIGH SCHOOLS AND COLLEGES IN THE SAMPLE GROUP WITH CURRICULUM AREAS

Name of School or College	Area
High Schools	
1. Port Byron C. S. Port Byron, New York	Agricultural Business
2. Hilton C. S. Hilton, New York	Agricultural Business
3. Chatham BOCES Kinderhook, New York	Agricultural Mechanics
4. Union Springs C. S. Union Springs, New York	Agricultural Mechanics
5. Woodrow Wilson H. S. Middletown, Connecticut	Agricultural Mechanics
6. Springville C. S. Springville, New York	Conservation
7. Waterville C. S. Waterville, New York	Conservation
8. Nassau Voc. Ed. & Ext. Board Oyster Bay, New York	Ornamental Horticulture
9. E. O. Smith H. S. Storrs, Connecticut	Ornamental Horticulture
10. Sewanhaka H. S. Floral Park, New York	Ornamental Horticulture
Colleges*	
11. State University of New York Agricultural and Technical College at Alfred, New York	Agricultural Business Ornamental Horticulture Agricultural Mechanization

* Based on a review of the 1966-67 catalogues of these institutions.

APPENDIX D
(Continued)

Name of School or College	Area
12. State University of New York Agricultural and Technical College at Canton, New York	Agricultural Business Agricultural Mechanization
13. State University of New York Agricultural and Technical College at Cobleskill, New York	Agricultural Business Agricultural Mechanization Ornamental Horticulture
14. State University of New York Agricultural and Technical College at Delhi, New York	Agricultural Business Agricultural Mechanization
15. State University of New York Agricultural and Technical College at Farmingdale, New York	Agricultural Mechanization Ornamental Horticulture
16. State University of New York Agricultural and Technical College at Morrisville, New York	Agricultural Business Agricultural Mechanization Conservation Ornamental Horticulture
17. University of Connecticut Radcliff Hicks School of Agriculture, Storrs, Connecticut	Ornamental Horticulture

APPENDIX E

PARTICIPANTS IN THE STUDY

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Raymond Ernenwein, Teacher
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Hilton High School

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Lyle Wicks
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Technical College

Frank Wolff, Associate
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APPENDIX F

PROGRAM - ARTICULATION CONFERENCE ON THE AGRICULTURE PROGRAMS IN HIGH SCHOOLS AND AGRICULTURAL & TECHNICAL COLLEGES

June 17, 1966

9:30	Introduction	Joe P. Bail, Chairman Agricultural Education Division
9:40	Greetings	Herbert L. Everett, Director Office of Resident Instruction
9:50	The Objectives of the Study	Joe P. Bail
	Questions	William Hamilton
10:30	Coffee	
11:00	Concerns in Articulation	
	A. Agricultural and Technical Colleges	Howard Sidney, Chairman Agricultural Division, Cobleskill
	B. High School Vocational Departments	Paul Emerling Springville
	C. State Education Department	Frank Wolff, Bureau of Agricultural Education, Albany
12:00	Lunch at Dairy Bar Cafeteria	
1:00	Organize Discussion Groups by Subject Matter Areas	William Hamilton
1:15	Group Meetings:	
	Agricultural Business	Chairman - Glen Bronson
	Agricultural Mechanization	Chairman - Ralph Whitehead
	Conservation	Chairman - Jay Manchester
	Ornamental Horticulture	Chairman - Ralph Smalley
2:30	Coffee	
3:00	Group Reports from Discussion Groups	The Group Recorders
3:30	Completion of Conference Details	William Hamilton

PROGRAM
SECOND ARTICULATION CONFERENCE ON THE AGRICULTURAL PROGRAMS IN HIGH SCHOOLS AND AGRICULTURAL & TECHNICAL COLLEGES

November 4, 1966

Chairman - William Hamilton - Cornell University

9:30	Introductions	Joe P. Bail, Chairman Agricultural Education Division
9:40	Greetings	
9:50	Progress to Date in the Project	Joe P. Bail W. H. Hamilton
10:05	Status of These Programs in:	
	Connecticut	L. L. Turner
	New York	H. L. Noakes
10:15	Organizing for Work Sessions in the Specialized Areas	Project Staff
10:45	Coffee Break	
11:15	Work Sessions	
	Ornamental Horticulture	Project Staff
	Agricultural Business	
	Agricultural Mechanization	
	Conservation	
12:30	Lunch at Dairy Bar Cafeteria	
1:30	Second Work Sessions	
2:30	Coffee Available (While work sessions continue)	
3:30	Completion of Conference Details	William Hamilton

APPENDIX G

GUIDELINES FOR INNOVATING HIGH SCHOOL PROGRAMS IN AGRICULTURE

Starting the Program

1. Surveys are Useful in Several Ways

First, surveys can serve as a means of informing people that a new program is being considered. Second, they serve as an indication of student interest and give preliminary estimates of student enrollment. Third, an employer survey can be used to identify some of the skills or competencies that the boys or girls will need during training in the special program being planned. Fourth, this employer survey will help inform employers and develop a favorable attitude towards the program. Fifth, the improved public relations will make work experience stations easier to obtain and will make possible better employer-teacher cooperation in planning and conducting programs.

2. A Great Deal of Help is Available from the State Department of Education

Help in planning, survey forms, in securing personnel for meetings with officials and the public, and other consultative services are available. Printed materials from various sources may also be provided to help in getting new programs started.

3. Joint Meetings of Administrators, Guidance Personnel, Teachers of Agriculture and Advisory Group Members are Desirable

The involvement in planning of all groups who will be affected by the program will do much toward accomplishing the program goals. The people involved will become knowledgeable, and become supporters of the program. In addition, they will help interpret the program to the people they represent and the people they come into contact with in their daily work. Good public relations can be improved in this manner.

4. Visits to Other Existing Programs will be a Useful Tool in the Planning of a Local or Area Program

Actual visits to existing new programs provide the incentive for innovation among the key people responsible for such changes. In addition, the enthusiasm exhibited by those conducting the programs visited, helps to "sell" a number of such individuals who can assist in telling the story locally.

Work Experience

1. Work Experience is a Valuable Part of the School Program

The traditional viewpoint that learning is a self-active process and is reflected in changed behavior has been demonstrated through supervised practice programs. Practical work experience in as near a real job setting as is possible should be an integral part of a special program.

Yearly goals in terms of hours of experience varied, with the range in this survey from 150 to over 400 hours per year.

2. The School Should Help Students Find Work Experience Stations

The majority opinion favors the school helping the students locate work experience stations. Among reasons given are the following:

1. The school has too much at stake to leave this arrangement to chance. Likely this is the student's first job experience and he can use the help and encouragement in making an initial contact.

2. The school needs to be concerned about the quality of the work station.

3. Employers Should be Involved in Planning Work Experience Programs

For full cooperation the employers should be involved in planning the experiences for students who are to be employed in their place of business. Advantage can be taken of particular equipment or techniques involved in a given business. It is also an excellent opportunity to impress employers with the idea that students are there to gain as wide a range of knowledge or experience as possible. In addition, any plan a person helps make is more readily adopted by him and becomes "his" program.

4. In Work Experience Programs the Student Should be Paid

Although it is recognized the primary purpose of the program is the training of the student in skills within the business, unless the student is paid he will have very little incentive to do well on the job. The student must show his presence is profitable to the business to justify his presence there. Assuming that the student must show a profit to his employer, the matter of pay becomes one of compliance with the labor laws and motivation. A plan that permits a base starting point in pay with a possible incentive increase after the student has learned some basic skills in the business will serve as a powerful incentive.

Facilities

1. Adequate Facilities are a Must for Quality Programs

In planning for new programs, facilities should be large enough to handle increasing enrollment. The history of these programs has been a small start and a rapid expansion in a period of a few years. The nature of the specialized program will determine the kinds of facilities needed to make the instruction most meaningful.

2. Adequate Equipment is a Must for Specialized Programs

Provisions in the budget must be made for adequate equipment appropriate to the specialty being offered. The more intensive the instruction in the specialized program, the greater the need for specialized equipment.

3. Teachers Must be Aware of Instructional Materials, and Their Sources in the Specialized Area

Inexperienced teachers or those working in a specialty for the first time, must acquaint themselves with materials of the field. This includes commercial as well as educational materials.

Community Concern

1. Community Resources Should be Used in Specialty Programs

Businesses in the community who have specialists and special equipment not available in the local schools can be used as a source for training. The use accomplishes two purposes, first, it provides the student with the experience and second, it helps acquaint the employer with the program.

2. The Inclusion of Specialty Programs in the School Curriculum Helps Fill Community Needs

Agriculture is more than farming. The change in community sources of revenue from agriculture to industry, or for services to agriculture, have reduced the number of people required in farm production. Many people serving farmers need extensive agricultural skills. The specialized programs provide an opportunity to train workers for these service businesses.

3. Local Dealers and Trade Organizations Should be Informed About Special Programs

Local dealer or trade organizations can be helpful in the conduct of work experience and in planning the in-school portion of these programs. Often a member of such an organization may serve as a member of an advisory board. Good public understanding demands that these people be included in planning such programs. Getting businessmen involved will help them understand the program and also will help the teacher understand the businessman's situation.

Public Relations

1. Communications are Very Important in Starting Specialized Programs

Involvement and information builds understanding and support. Estimates of public relations and informational programs are often too high. In the survey, parents, employers, advisory board members and other people were not as well informed about the program as the teachers and administrators of those programs thought they were.

2. Wide Publicity is Needed in Starting Programs

All suitable avenues of publicity should be used to inform the public and prospective students of new programs. Some of the methods of publicity used by districts in the study included newspaper stories, radio, TV programs, printed materials, public meetings, student demonstrations, open houses, demonstration plots and special student-parent meetings. For established new programs, most school people stated that word of mouth advertising by other students was the most effective publicity.

3. Exhibits are Useful Tools in Promoting Programs

Exhibits serve two useful purposes in promoting programs. First, a properly prepared and placed exhibit may contact with more force, more people than other publicity is able to do. A second value is the experience obtained by students in preparing and placing the exhibits. The type of exhibit may vary according to the specialized program.

4. Students Should be Involved in Public Relations Activities

There are several reasons for including students in public relations activities. Among these are: the value to the student involved, parent interest in student participation, opportunity for the public to observe the students of the program and the value of presentation by other than professional personnel.

5. Demonstration Plots Can be Used to Advantage in Promoting Programs

The same comments as made concerning exhibits would apply to demonstration plots. The major difference is that the demonstration plots would continue over a longer period of time, perhaps years, whereas an exhibit would likely be of shorter duration.

Insurance and Liability Concern

1. Insurance and Liability for New Programs Should be Checked With the School Master Policy

Teachers because they work with the students in these new situations are more cognizant of possible hazards. Most school insurance policies are broad enough to include these new programs in the same framework as existing programs. Perhaps all that is needed is a word to the insurance carrier to check special coverage for these programs.

Transportation and Travel

1. Transportation of Students is a Concern in Starting New Programs

Transportation problems were worked out in different ways by different districts. The basic concern was the time the students spent in traveling. This was a primary concern of students interviewed who attended area centers. They felt that the time they had spent in travel could have been more profitably spent in learning more in the specialty. Care, therefore, should be exercised in planning for the minimum amount of transportation time in bringing students to these new programs. Provision should be made for transportation of students on field trips to facilitate quality instruction.

2. The Movement of a Teacher Between Centers can be an Important Concern

Where teachers have to move between centers for different classes, careful scheduling needs to be worked out between the attendance centers. Adequate travel time must be allowed considering considering travel conditions through the winter months. The amount of time the teacher spends in travel may need careful evaluation.

Objectives of the Program

1. Development of Entry Level Skills Must be a Primary Objective

Programs supported under Public Law 88-210 must have this as a primary objective. There are several other objectives that should be considered. Among these are vocational exploration, and preparation for entrance into post-high school institutions.

Area Program Concern

1. In Multiple Teacher Programs One Teacher Should Act as Coordinator

Someone must bear final responsibility for reports and for the overall successful operation of the program. This teacher assumes major administrative responsibilities for the work of the department.

2. Differences in Feeder School Programs Should be Considered

Such things as marking systems, differences in student regulation, or scheduled starting times may be problems in the start of a new program. For example, if the area school uses 60 as a passing mark and a local school uses 65, problems may arise at the marking period time. Careful examination of these items in advance can prevent these matters from becoming major pitfalls.

3. In New York, the Board of Cooperative Educational Services Program's Responsibility Should be Clearly Defined

Where programs operate in cooperation with a B.O.C.E.S. Center an opportunity exists for misunderstandings to occur. A clear statement of responsibilities of each party is desirable.

Other Administrative Concerns

1. Careful Attention to Scheduling is Needed

For students who may later consider additional education, careful construction of the schedule is necessary so these students can obtain the necessary college entrance requirements if they so desire. Scheduling may involve the time available for on-the-job experience. An opportunity for the student to participate in other extra-curricular activities should be considered in scheduling.

2. Careful Planning is Essential in Scheduling Work Experience Programs

On-the-job experience in specialty training requires careful scheduling of time for the in-class portion of the program as well as the work experience portion. The total number of hours spent in the program as compared to other school programs should also be considered in the awarding of school credit.

3. Follow-Up Records of Graduates are Valuable in Program Planning

Current knowledge of the status of graduates and former students can be of considerable value in program planning and development. To be of most value, the teacher of agriculture should be involved in gathering this data. This should be a cooperative endeavor with the guidance department.

4. A Youth Organization is a Valuable Adjunct to Training Programs

Where area programs have been involved, three types of organizational patterns have been reported by the respondents in this study. Careful evaluation of these programs needs to be made before final decisions are made in regard to the type of youth organization included in the new program. The first type involved an FFA at each of the feeder schools for boys in the first two years with a senior FFA for the boys in the last two years of specialization at the area center. The second type involved an FFA chapter at the local school with members from both the home school and the area center. The third type involved the organization of an FFA only in the area center.

5. A Written Policy for the Operation of the Program is Desirable

Some type of written guidelines are needed at the beginning of the program although policy should not become rigid. Provisions should be made for revising policies based on experience and changing conditions.

6. Students Should be Able to Elect a Specialty Without Having Had Previous Agricultural Courses

It is recommended that students take Ag. 1 and 2 before entering special programs unless the specialty begins at the sophomore level. However, students may decide later in their academic careers to explore one of the specialties and a requirement that they take a preliminary course would probably exclude them. These students should recognize, however, that they may be at a disadvantage compared to those who have pursued the entire sequence.

7. In the Multiple Teacher Program Teacher Specialization Should be Practiced

The obvious benefits of having each teacher operate in the area of his most adequate preparation and experience is obvious. Specialization within the department will permit teachers to take courses to increase their competencies. Improvement in teacher competency can be accomplished more rapidly with specialization.

APPENDIX H

GUIDELINES FOR STRENGTHENING ARTICULATION BETWEEN HIGH SCHOOL AND TECHNICAL COLLEGE CURRICULUMS IN AGRICULTURE

1. A Knowledge of Program Offerings is Essential

Instructors at each level should be fully aware of the offerings in agriculture. Specialists in the instructional areas at the technical college should have copies of courses of study used at the high school level. The high school instructors should have catalogues of the technical colleges plus brief one-page summaries of objectives, course content, and related information of the major offerings.

2. Program Titles Should Reflect the Actual Content and Intent of the Training

The more specific the programs are labeled, the less misunderstanding should result. Most subject matter areas may have several major subdivisions. Unless a program is clearly designed to be general in content, it should give the specialized area within the major subject matter discipline which will be stressed.

3. Programs Should Have Clearly Defined Job Titles or Families of Jobs Which Graduates May Expect to Enter

The specific job titles or job families which graduates may enter should be listed. Students should be clearly aware of the jobs for which they are equipped by their training, whether upon graduation from high school or from the technical college.

4. Qualifications for Entry Into the Educational Program Should be Spelled Out in Detail

The required previous education or courses, experience or background, as well as academic ability level needed (judged by standardized tests) at both levels of program, must be given. These statements should be listed as minimum requirements, recognizing that selection will be made in cases where more students apply than can be accommodated.

5. A Checklist of Skills and Abilities Needed by Beginning Workers in the Specific Job Titles Should be Available

Adequate and thorough planning of courses necessitates knowledge of what workers do on the job. Research already completed, including follow-up studies of recent graduates, should enable course planners to provide meaningful educational experience in the classroom and laboratory.

6. Curriculums and Course Offerings Must be Continually Evaluated and Updated

New demands upon workers and increases in scientific and technical knowledge require the instructor to keep abreast of changes in his specific courses or program fields.

7. Opportunity for Work Experience in Connection with the Program is Desirable

At the high school level, appropriate work experience is a required part of the program. In some technical colleges, summer experience or internship is required. Students should have opportunity to work in the field at an appropriate wage. Not only will this strengthen their formal course work but the exploratory experience will help students firm up career choices.

8. Students Should be Provided with Guidance and Career Information at an Early Date

Vocational and educational guidance should be a part of the program at all levels. Students should be aware of the opportunities and qualifications for continued formal education at technical and four-year colleges. In addition, the opportunity to progress on the job and to move to more responsible positions should be outlined. Both formal and informal study opportunities should be stressed.

9. Previous Training in a Special Instructional Area Should be Recognized

Students who matriculate in technical college programs with previous study at the high school level may well be considered for advanced courses based upon an assessment of their previous training. Their total educational program may not be lessened but they can expect to develop higher level skills and abilities.

10. Regular Meetings of Professional Leaders at Both Levels of Instruction are a Necessity for Good Articulation

Understanding and articulation of programs requires dialogue among the leaders of such programs. If leaders do not have mutual respect and understanding, articulation at lower levels is not likely to occur.

11. Teaching Staffs in Specialized Instructional Areas Should Meet Regularly to Share Ideas

Instructors at both levels should have opportunity to meet regularly in professional meetings or technical subject-matter groups to discuss common interests and concerns in their specialized instructional area. These sessions might take the form of seminars, workshops, or other in-service meetings.

12. Leadership Development Should be a Part of the Education Program

Education for citizenship and leadership in a democracy should be provided at both levels. Organizations or clubs provide this opportunity in a systematic way. Organizations must reflect the needs and interests of the age group for which they are designed.